

C. Amendments to the Claims:

Claim 1 (Currently Amended): A method for enabling an application designer and a user to develop user interfaces (UIs) by modeling a User Interface (UI) from a plurality of UI models without coding, each of the plurality of UI models being developed using a plurality of pre-built reusable components, the method comprising the steps of:

- a. identifying the requirements of the UI as processes, the application designer identifying the processes;
- b. defining the tasks that are required to define the identified processes, the tasks being defined by providing meta data to the instances of a set of pre-built reusable components, the meta-data being provided using a visual modeling environment, each pre-built reusable component being an abstract object built to perform a function;
- c. connecting the defined tasks in a logical order using the visual modeling environment, the defined tasks being connected to model the identified processes, the tasks identified processes being connected in a flowchart-like manner used to develop the plurality of UI models; and
- d. ~~storing the data related to the tasks and the overall process for the developed UI~~ storing the data related to the tasks and the overall process for the developed UI plurality of UI models in a database; and
- e. executing the plurality of UI models by an engine based on a plurality of requests, the plurality of requests being made by the application designer and the user while developing the UI, the plurality of requests being concurrently executed by loading the identified processes from the database and executing the tasks specified in the identified processes, the tasks being executed in the logical order.

Claim 2 (Canceled).

Claim 3 (Currently Amended): The method according to claim 1, wherein the step of defining the tasks comprises ~~the steps of~~:

a. defining the tasks that are required to define the processes that are required to develop the UI screens comprising:

- i. defining the tasks for placing controls on the UI screens;
- ii. defining the tasks for mapping of database fields to ~~the~~ screen variables;
- iii. defining the tasks for validating the user actions at the a control level and at the a screen level;
- iv. defining the tasks for forwarding ~~the~~ screen information to ~~the~~ an application controller; and

b. defining the tasks that are required to define the processes that are required to develop the ~~application controller for~~ structure of the UI.

Claim 4 (Currently Amended): The method according to claim 3, wherein the step of defining the tasks comprises the steps of:

- a. selecting the set of pre-built reusable components that are required to define the ~~identified~~ tasks; and
- b. defining the tasks, the tasks being defined by specifying meta-data for the selected pre-built reusable components, the meta-data being process specific properties which when associated with a pre-built reusable component defines the corresponding task.

Claim 5 (Currently Amended): The method according to claim 1, wherein the step of ~~interconnecting~~ connecting the defined tasks in the logical order comprises the steps of:

- a. defining at least one Rule;

b. specifying ~~a-task~~ tasks to be referred to in case of success of the at least one Rule; and

c. specifying ~~a-task~~ tasks to be referred to in case of failure of the at least one Rule.

Claims 6-10 (Cancelled).

Claim 11 (Currently Amended): The method according to claim 1, wherein the step of executing the plurality of UI models further comprises ~~the step of enabling a user to execute the developed UI, the execution comprising the steps of:~~

a. inputting ~~a-request~~ the plurality of requests to be processed, the ~~request~~ plurality of requests being input by a the application designer and the user while developing the UI;

b. transferring the request plurality of requests to an the Engine for processing;

c. identifying the pre-built reusable components required to process the user's request plurality of requests;

d. caching the identified pre-built reusable components;

e. executing the tasks in a the logical order as defined in the UI-process identified processes;

f. handling the errors that occur while processing the request plurality of requests, if errors occur in any of the above steps;

g. logging the information related to the execution of the tasks in a the database; and

h. outputting the results of the execution.

Claim 12 (Currently Amended): A method for enabling an application designer and a user to develop ~~User Interfaces (UIs) by modeling a User Interface (UI)~~ from a plurality of UI models without coding, each of the plurality of UI models

being developed using a plurality of pre-built reusable components, the method comprising the steps of:

- a. identifying the requirements of the UI as processes that are required to model the UI screens, the application designer identifying the processes;
- ~~b. identifying the processes that are required to develop the application controller for the UI;~~
- ~~c. b. defining the tasks that are required to define the identified processes, the tasks being defined using by providing meta-data to instances of a set of pre-built reusable components, the meta-data being provided using a visual modeling environment~~, each pre-built reusable component being an abstract object built to perform a function;
- ~~d. defining a plurality of Rules;~~
- ~~e. specifying a task to be referred to in case of the success of each Rule;~~
- ~~f. specifying a task to be referred to in case of a failure of each Rule;~~
- ~~g. interconnecting the tasks serially;~~
- ~~h. visually verifying the developed UI; and~~
- ~~i. storing the data related to the developed UI in a database.~~
- c. verifying the defined tasks by applying a set of pre-defined verifications on each of the defined task;
- d. connecting the defined tasks in a logical order using the visual modeling environment, the defined tasks being connected to model the identified processes, the identified processes being used to develop the plurality of UI models;
- e. storing the plurality of UI models in a database;

f. inputting a plurality of requests to be processed, the plurality of requests being input by the application designer and the user while developing the UI;

g. transferring the plurality of requests to an Engine for processing;

h. identifying the pre-built reusable components required to process the plurality of requests;

i. caching the identified pre-built reusable components;

j. executing the tasks in the logical order as defined in the identified processes;

k. handling errors that occur while processing the plurality of requests, if errors occur in any of the above steps;

l. logging the information related to the execution of tasks in the database; and

m. outputting the results of the execution.

Claim 13 (Withdrawn): A system for enabling an application designer to develop user interfaces (UIs) by modeling without coding, the system comprising:

a. an Engine, the Engine executing the UIs;

b. a plurality of clients, the clients interacting with the Engine;

c. a Designer for providing an interface to the application designer to visually develop and verify the UIs, the Designer being one of the plurality of the clients;
and

d. a plurality of Databases for storing meta-data and application data related to the UIs modeled using the Designer.

Claim 14 (Withdrawn): The system according to claim 13, further comprising:

a. a Web Server, the Web Server connecting the Engine with the plurality of clients;

b. an Administration Tool, the Administration Tool enabling a user to view the system activity and perform the administrative functions, the Administration Tool being one of the plurality of clients;

c. a Message Service module, the Message Service module enabling the interaction of the Engine with the plurality of clients; and

d. A Security Service module, the Security Service module providing the authentication, authorization, auditing and administration services.

Claim 15 (Withdrawn): The system according to claim 13, wherein the Engine comprises:

a. a Message Service Queue, the Message Service Queue temporarily storing requests and the results obtained by processing of the requests, the requests being processed by the Engine;

b. a Scheduler, the Scheduler scheduling the requests into the Message Service Queue;

c. a DB Logger, the DB Logger logging the information related to the requests in the Database;

d. a Cache Manager, the Cache Manager caching meta-data related to the business application models from the Database, the business application model being executed for processing the request;

e. an Execution Module, the Execution Module executing the requests; and

f. an Exception Handling Framework, the Exception Handling Framework for handling the errors that occur during processing of the requests.

Claim 16 (Withdrawn): The system according to claim 13 further comprising a plurality of pre-built components, the components enabling the application designer to develop the UIs, each component representing a functionality that is required in the development of UIs, each component comprising:

- a. a meta-data structure that defines the structure of the meta-data, wherein the meta-data is a collection of properties specific to the functionality being represented by the component;
- b. a plurality of GUI objects that encapsulate the meta-data structure and provide a GUI to enable the application designer to input the meta-data; and
- c. a computer program code segment that understands the meta-data structure and the implied functionality.

Claim 17 (Withdrawn): The system according to claim 16, wherein the plurality of pre-built components comprise Functional components, the Functional components comprising:

- a. a UI State component representing the functionality of specifying the system-defined state and User defined state for the UI;
- b. a Database Access component representing the functionality of accessing data from a Database;
- c. an External Object component representing the functionality of using an external object;
- d. a Rule component representing the functionality of evaluation of a condition; and
- e. an Assignment Object representing the functionality of assigning a value to the variables used in the UI.

Claim 18 (Withdrawn): The system according to claim 16, wherein the plurality of pre-built components comprise Flow components, the Flow components comprising:

- a. a Selector component representing the functionality of selecting one of the components in the UI;

- b. a UI Start component representing the functionality of denoting where a UI starts;
- c. a UI End component representing the functionality of denoting where a UI ends;
- d. a Line component representing the functionality of connecting the components;
- e. a Rule component representing the functionality of evaluation of a condition;
- f. a Tasks component representing the functionality of calling the Rule component;
- g. a Loop component representing the functionality of modeling repetitive execution of tasks within a process;
- h. a Loop end component representing the functionality of terminating a loop within a process; and
- i. a Text component representing the functionality of annotation.

Claim 19 (Withdrawn): The system according to claim 13, wherein the Designer comprises:

- a. A UI modeling screen for enabling the application designer to model the UI in a flowchart like manner;
- b. a UI Start component's task screen for enabling the application designer to specify the meta-data for the UI start component;
- c. a Line component's task screen for enabling the application designer to specify the meta-data for the Line component;
- d. a Rule component's task screen for enabling the application designer to specify the meta-data for the Rule component;

- e. a Rule condition screen for enabling the application designer to specify the left hand side and right hand side of the Rule component;
- f. a Process State component's task screen for enabling the application designer to specify the meta-data for the Process State component;
- g. an Assignment Object's task screen for enabling the application designer to specify the meta-data for the Assignment component; and
- h. Database Access component's task screen for enabling the application designer to specify the meta-data for the Database Access component.

Claim 20 (Withdrawn): The system according to claim 19, wherein the UI modeling screen comprises:

- a. a UI Workspace for defining the UI in a flowchart like manner;
- b. a Component Palette for providing an interface to the components for defining the UI; and
- c. an Object Browser for providing an interface to the components for defining the UI.

Claim 21 (Withdrawn): The system according to claim 15, wherein the Exception Handling Framework comprises:

- a. an Error Types and Structure, the Error Types and Structure storing information regarding all the possible errors;
- b. an Exception Handling Strategy, the Exception Handling Strategy identifying and executing a strategy for handling the errors;
- c. an Error Integration, the Error Integration comprising a library of strategies for handling the errors, the library being integrated with the Exception Handling Strategy; and

d. an Error Logger, the Error Logger storing the information related to the errors in the Database.

Claim 22 (Withdrawn): The system according to claim 21, wherein the Error Types and Structure comprises:

- a. an Error Object, the Error Object encapsulating all the information about an error and its context; and
- b. an Exception Hierarchy, the Exception Hierarchy maintaining a list of all errors grouped in a hierarchical structure.

Claim 23 (Withdrawn): The system according to claim 22, wherein the Exception Handling Strategy comprises:

- a. an Error Handler, the Error Handler executing the strategy for handling the errors;
- b. an Error Default Handler, the Error Default Handler specifying the default strategies for handling any unhandled exceptions;
- c. a Resource Preallocation, the Resource Preallocation managing the memory that stores the information related to the errors; and
- d. a plurality of Error dialogues, the Error dialogues displaying an error message to the user.

Claim 24 (Currently Amended): A computer program product for use with a computer, the computer program product comprising a computer usable medium having a computer readable program code embodied therein for enabling a designer to model User interfaces by modeling an application designer and a user to develop a User Interface (UI) from a plurality of UI models without coding, each of the plurality of UI models being developed using a plurality of pre-built reusable components, the computer program code performing the steps of:

- a. identifying the requirements of the UI as processes that are required to model the UI, the application designer identifying the processes;
- b. defining the tasks that are required to define the identified processes, the tasks being defined using by providing meta-data to instances of a set of pre-built reusable components, the meta-data being provided using a visual modeling environment, each pre-built reusable component being an abstract object built to perform a function;
- c. connecting the defined tasks in a logical order using the visual modeling environment, the defined tasks being connected to model the identified processes, the tasks being connected in a flowchart-like manner identified processes being used to develop the plurality of UI models;
- d. storing the data related to the developed UI plurality of UI models in a database; and
- e. executing the plurality of UI models by an engine based on a plurality of requests, the plurality of requests being made by the application designer and the user while developing the UI, the plurality of requests being concurrently executed by loading the identified processes from the database and executing the tasks specified in the identified processes, the tasks being executed in the logical order.

Claim 25 (Currently Amended): The computer program product as claimed in claim 24, the computer program product further comprising program code embodied therein for enabling a the application designer and the user to visually verify the developed UIs.

Claim 26 (Currently Amended): The A computer program product as claimed in claim 24, the computer program product further comprising program code embodied therein for enabling a the application designer and the user to execute the user-interface plurality of UI models using the computer program product, the computer program code performing the steps of:

- a. inputting a request the plurality of requests to be processed, the request plurality of requests being input by a the application designer and the user while developing the UI;
- b. transferring the request plurality of requests to an the Engine for processing;
- c. identifying the pre-built reusable components required to process the user's request plurality of requests;
- d. caching the identified pre-built reusable components;
- e. executing the tasks in a the logical order as defined in the UI-process identified processes;
- f. handling the errors that occur while processing the request plurality of requests, if errors occur in any of the above steps;
- g. logging the information related to the execution of the tasks in the Database database; and
- h. outputting the results of the execution.

Claim 27 (New): The method according to claim 1 further comprising the step of enabling the application designer to verify the defined tasks by applying a set of pre-defined verifications on each of the defined tasks.

Claim 28 (New): The method according to claim 27 further comprising the step of enabling the application designer to visually verify the developed UI, the verification comprising the steps of:

- a. observing values of a plurality of watch variables while executing the UI models, the plurality of watch variables being identified by the application designer;
- b. stopping at each of a plurality of break points while executing the UI models, the plurality of break points being set by the application designer; and

c. analyzing information related to the UI models at each of the plurality of break points.